

RESEARCH ARTICLE

Analyzing Pakistan's Export Performance to China Under the FTA: Does Tariff Recession Matter?

Zeeshan Iqbal¹, Shahzad Ahmad², Imad Ahmad^{2*}

¹ College of Economics and Management, Beijing University of Technology, Beijing 100124 China.

² College of Customs Administration, School of Government, University of International Business and Economics, Beijing, China

* Corresponding author: Imad Ahmad, imad77471@gmail.com

ABSTRACT

The China-Pakistan FTA, contracted in 2006, has significantly influenced the dynamics of bilateral trade among China and Pakistan. Established on aggregated panel data of 150 commodities from 2007 and 2023, this paper examines the effect of tariff reduction and trade facilitation costs of Pakistani exports to China according to the offer list offered by China. The gravity model and advanced econometric techniques are used, and it has been identified that the FTA and trade reduction models positively affected Pakistan's export trajectory. Additionally, trade improvements were initiated by reducing trade facilitation costs for Exports and imports per container. The recommendations in this study considered ways to best realize the advantages of the FTA by decreasing trade barriers and capitalizing on industrial competitiveness, along with the Belt and Road Initiative (OBOR), especially for Pakistan, to promote their domestic industries. Such results provide policymakers with insights for improving bilateral trade ties and resolving the current trade imbalance.

Keywords: Gravity model; China-Pakistan; free trade agreements; tariff recession.

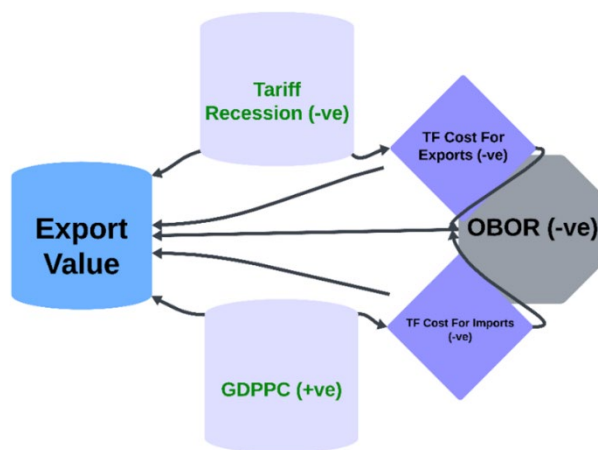


Figure 1. Graphical Abstract

ARTICLE INFO

Received: 3 March 2025 | Accepted: 9 May 2025 | Available online: 16 June 2025

CITATION

Z. Iqbal, S. Ahmad, I. Ahmad. Analyzing Pakistan's Export Performance to China Under the FTA: Does Tariff Recession Matter? *Frontiers of Finance* 2025; 3(1): 12000. doi: 10.59429/ff.v3i1.12000

COPYRIGHT

Copyright © 2025 by author(s). *Frontiers of Finance* is published by Arts and Science Press Pte. Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), permitting distribution and reproduction in any medium, provided the original work is cited.

1. Introduction

Free Trade Agreement (FTA) has recently emerged as a powerful instrument of modern trade policy to facilitate trade and streamline regional integration. It is a significant milestone in terms of the China-Pakistan Free Trade Agreement, which was contracted on November 24th, 2006, between the two nations to promote economic relations. Bilateral Trade is also meant to increase with the reduction in tariffs for vital commodities, giving preferential market access to both countries and more trade facilitation measures. The transition period with more moderate tariff decreases was phase 1 of the FTA, 2007 to 2012; phase 2 started in 2013 and expanded the scope of concessions on the tariff side. However, these initiatives could not level out the FTA's economic imbalance, and Pakistan endures to tolerate a trade deficit with China.

FTAs have been proven, in existing literature, to have the potential to create a transformative change for increasing exports and promoting economic growth. Following ^[1], ^[2] on the effect on export competitiveness of reduced trade obstacles, ^[3] reference the benefits of trade facilitation actions to lessen prices and expand market access. However, most studies regarding the China-Pakistan FTA focus on the total trade flows, ignoring the effects it might have on commodities or trade facilitation costs. Moreover, the interaction between tariff reductions and the importance of other trade determinants, such as GDP growth and infrastructure development under OBOR initiatives, is poorly understood.

1.1. The Current Trade Overview

Historically, the China-Pakistan partnership was more political and strategic. However, the changing structure of international relations and the growing need for economic cooperation pushed China and Pakistan to join hands on the economic front. Initially, the two countries signed a preferential trade agreement in 2003, in which Pakistan was granted tariff concession on 767 items, while 5% tariffs were reduced for China on 386 product lines ^[4]. Later, China and Pakistan signed an FTA in November 2006, where Pakistan was granted concessions on 6,418 items while China was granted concessions on 5,686 products which The latest utilized concession rate under the China-Pakistan Free Trade Agreement (CPFTA) has not been officially disclosed beyond 2016; however, available data indicates that from 2007 to 2016, Pakistan utilized less than 5% of the concessions granted, whereas China utilized 59% of its allocated product lines ^[5]. More imports from China and fewer exports to China expanded Pakistan trade deficit with China (Table 1).

The China-Pakistan Free Trade Agreement (CPFTA) has increased Pakistan's exports to China, but this growth has been overshadowed by rising imports, resulting in a persistent trade deficit. From 2007 to 2023, Pakistan's exports grew modestly from \$0.61 billion to \$3.40 billion, while imports surged from \$4.16 billion to \$17.30 billion, widening the trade gap. Although CPFTA expanded trade, Pakistan's export competitiveness has not significantly improved, and the benefits have largely favored China ^[6]. By 2016, Pakistan's exports to China accounted for only 7.7% of its total exports, while imports from China made up 29% of its total imports. Pakistan's share in China's import market remained minimal, peaking at 0.17% in 2012 before falling back to 0.12% in 2016. While some export sectors have seen growth, high-value imports from China continue to dominate. Despite tariff reductions, Pakistan has struggled to diversify exports and reduce dependency, leaving the trade imbalance unresolved (UN, comtrade 2023).

Table 1. Bilateral Trade Overview of China and Pakistan 2007-2023

Year	Pakistan's Exports to China (Billion USD)	Pakistan's Imports from China (Billion USD)	Total Trade Volume (Billion USD)	Trade Balance (Billion USD)
2007	0.61	4.16	4.77	-3.55
2008	0.73	4.74	5.47	-4.01
2009	1.00	3.78	4.78	-2.78
2010	1.44	5.25	6.69	-3.81
2011	1.68	6.47	8.15	-4.79
2012	2.62	6.69	9.31	-4.07
2013	2.65	6.63	9.28	-3.97
2014	2.25	9.59	11.84	-7.34
2015	1.94	11.02	12.96	-9.08
2016	1.59	13.68	15.27	-12.09
2017	1.51	15.40	16.91	-13.89
2018	1.83	14.60	16.43	-12.77
2019	2.04	12.42	14.46	-10.38
2020	1.87	12.49	14.36	-10.62
2021	3.58	20.66	24.24	-17.08
2022	3.11	23.08	26.19	-19.97
2023	3.40	17.30	20.70	-13.90

Source: <https://comtrade.un.org/>

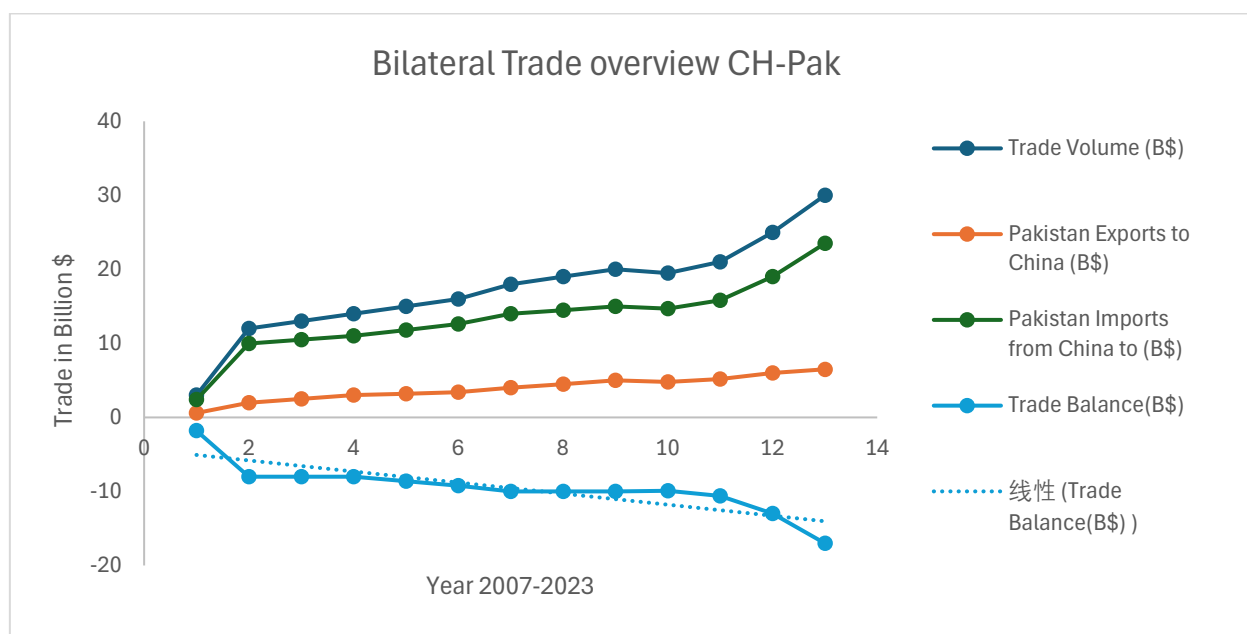


Figure 2. Bilateral Trade overview of China and Pakistan 2007-2023

1.2. The categories which apply to imports into China from Pakistan are the following:

The tariff duties shall be calculated with the given structure according to bilateral free trade negotiation between the beneficiary countries.

Table 2. Categories of tariff recession

Category	Entry into force	01-01-08	01-01-09	01-01-10	01-01-11	01-01-12
Category I	Tariff elimination in four phases, becoming duty-free by the 3rd year	25% reduction	50% reduction	75% reduction	100% reduction	Duty-free
Category II	Tariff reduced to 5% or lower in five years	9.17% reduction	8.33% reduction	7.5% reduction	6.67% reduction	5% reduction
Category III	50% tariff reduction within five years	8% reduction	16% reduction	25% reduction	33% reduction	41% reduction
Category IV	20% tariff reduction within five years	3% reduction	6% reduction	10% reduction	13% reduction	16% reduction
Category V	No concession	No	No	No	No	No

Source: Ministry of Commerce Pakistan/ Ministry of Commerce of the People's Republic of China

While the gravity model of trade suggests that larger economies with higher GDPs drive trade expansion ^[7], existing studies focus primarily on tariff reductions and trade flows without fully addressing how trade facilitation costs, tariff recessions, and economic growth interact under the CPFTA ^[8], ^[9]. Despite China's rising GDP creating demand for imports, Pakistan's ability to leverage this demand remains unclear, particularly due to high export costs and logistical inefficiencies. Additionally, prior research lacks a sectoral or commodity-level analysis using aggregated panel data, limiting insights into how specific exports respond to CPFTA-driven policy changes. This study bridges this gap by integrating tariff reductions, GDP per capita, and trade facilitation costs into a gravity model-based econometric framework, analyzing 150 Pakistani export commodities from 2007 to 2023 while incorporating OBOR as a dummy variable to assess its role in reducing trade barriers and enhancing export competitiveness. The results of this work add to the literature by offering new understandings of the role of trade facilitation and tariff concessions in shaping bilateral trade. Additionally, the results provide practical implications for policymakers, emphasizing the need for cost-reduction measures, industrial competitiveness, and strategic use of regional trade initiatives to address trade imbalances. This research adds to the academic discourse and informs future negotiations in the 2nd period of the China-Pakistan FTA, ensuring mutual benefits for both nations. The paper is designed as follows: Section 2 provides the necessary research literature; Section 3 deliberates the methodology; Section 4 confers the results and discussion; Section 5 concludes with policy recommendations.

2. Literature review

For many years now, FTAs have been considered important instruments for promoting bilateral trade and enhancing the economic standing of countries. A plethora of studies have pointed out the significance of FTAs where the barriers to trade are reduced, economic cooperation is promoted and trade flows among member countries is increased ^[10]. Yet, the effect of FTAs is not straightforward. Others argue that FTAs increase trade creation through efficiency and the comparative advantage, mainly for small firms ^[11] and

warn that FTAs redefine trade and exacerbate trade imbalances, most particularly on developing countries ^[12]. The main issue of this ongoing debate is based on the trade creation vs. trade diversion dichotomy ^[13].

Nice example of this dynamic is the China-Pakistan Free Trade Agreement (CPFTA), where an increase in the trade flows have been seen, but Pakistan is witnessed to undergo challenges such as growing trade deficit and the limited export diversification ^[14]. Such a situation makes it clear that any FTA benefits can be asymmetric and highlights the importance of understanding the asymmetric benefits in the context of developing nations. ^[15] argue that logistical inefficiencies, high trade facilitation costs, and a narrow export base limit exploitation of the FTA's full potential for Pakistan's exports. Unlike other literature, these findings align with the broader research that demonstrates that trade facilitation costs have a stronger impact on exports than tariff cuts alone, depending on their level of development ^{[16], [17]}.

Along the lines of this, it has recently been noted that trade facilitation rather than tariff cuts matters to the extent of maximizing the benefits of FTAs. The study of ^[14] reveals that modernization of customs procedures, developing infrastructure and reduce transport cost can have huge impact on trade flow. This implies for Pakistan, that the CPFTA has allowed some trade growth, but the real opportunity is to enhance the efficiency of the logistics and to eliminate non-tariff barriers ^[18]. As well, the literature argues that FTA can act as an accelerator in broader economic reforms, such as infrastructure development and institutional strengthening, being essential for future growth ^[19].

In general, FTAs' impact on trade has been tied to economic growth and GDP per capita. Larger, higher GDP economies trade more due to higher demand for foreign goods and products and labor intensive exports ^[7]. That is in line with ^{[20], [21]} who showed that the changes in China's economic growth positively affect Pakistan's exports in the sectors of textiles and agriculture. Studies also indicate how GDP plays a significant role in trade flows and how, along with tariff reduction, improved economic size creates a favourable environment for trade ^[8]. In terms of bilateral trade dynamics under the CPFTA, China's growing GDP and Pakistan's trade facilitation issues have to be the key factors in understanding the dynamics of bilateral trade ^[9].

Meanwhile, the Belt and Road Initiative (BRI) and China Pakistan Economic Corridor (CPEC) stand transformed factors as supporting infrastructure and inhibiting trade cost between China and Pakistan. It has the potential of enhancing connectivity, removing logistical bottlenecks and expanding market access to Pakistan's exports ^[22]. Nevertheless, the positive spillovers of CPEC and OBOR ^[23] are not equally distributed across regions with the rural Pakistan being often excluded from it. Therefore, Pakistan should reform its export diversification strategies and remedy the narrowness of its export base that limits to take full benefits from these mega initiatives ^[14].

Despite the extensive literature on the individual effects of FTAs, tariff reductions, and trade facilitation, the combined effect of these variables on export performance remains underexplored. Existing studies have typically examined the impact of these factors separately, but there is a lack of research that integrates them into a comprehensive model, especially within the context of China and Pakistan. This gap in the literature presents an opportunity to explore how tariff reductions, trade facilitation, and GDP interact to influence bilateral trade dynamics under the CPFTA. By addressing this gap, our study aims to provide a more nuanced understanding of how these factors collectively shape trade flows, offering insights for policy recommendations that could enhance the effectiveness of FTAs for developing countries like Pakistan.

3. Theoretical and empirical model

3.1. Data collection

This study examines the special effects of trade liberalization among China and Pakistan from 2007 to 2023 using aggregated panel data sets from five categories of 150 commodities from China's offer list to Pakistan.

Table 3. Variables Description and Expected Sign

Variable	Description	Data Source	Expected Sign
Export Value	Export value of 150 commodities (5 categories) from Pakistan to China	UN COMTRADE database	N/A
Tariff Recession	Calculated reduction in tariffs based on China-Pakistan tariff reduction model (MFN rates)	WTO and UN COMTRADE	+
China's GDP per Capita	Per capita GDP of China	World Bank	+
PAK GDP per Capita	Per capita GDP of China	World Bank	+
Cost of Export per Container	The cost associated with exporting a container from Pakistan to China	Doing Business Report	-
Cost of Import per Container	The cost associated with importing a container into China from Pakistan	Doing Business Report	-
OBOR (Dummy Variable)	Belt and Road Initiative participation (1 if post-OBOR, 0 otherwise)	N/A	+

The selection of Variables is based on the previous literature.

The data and analysis are based on 150 commodities across five categories, selected from China's offer list under the Free Trade Agreement (FTA). The commodities are divided into categories based on their 8-digit HS codes, with varying tariff rates applied to each category. These commodities represent Pakistan's key export products, and their export values show significant growth afterward the application of the China-Pakistan Free Trade Agreement (CPFTA). A thorough list of these commodities is available in the appendix. This study aims to assess whether the tariff reductions under the CPFTA have influenced the export performance of these selected commodities.

3.2. Gravity model: theoretical foundations of gravity equation

The gravity model of trade offers a compelling framework for understanding the dynamics of bilateral trade, particularly under the umbrella of Free Trade Agreements (FTAs) like the China-Pakistan Free Trade Agreement (CPFTA). At its core, the model highlights how trade flows between countries are driven by the economic size of the trading partners, essentially their GDP, and the trade costs that stand in the way of exchange, such as distance, tariffs, and logistical barriers. In the case of China and Pakistan, the combined GDP of these two nations acts as a powerful indicator of their potential to engage in trade, with larger economies like China stimulating greater demand for imported goods and offering increased opportunities for its trading partners. Central to the CPFTA's effectiveness is the phase-wise reduction of tariffs, which lowers trade barriers and boosts export competitiveness, much as past studies have suggested ^[8]. However, tariffs alone cannot unlock trade potential, high trade facilitation costs, such as transportation fees, customs procedures, and regulatory burdens, have the opposite effect, dampening the ability of exporters to compete

in the international market. The importance of lowering these trade facilitation costs is underscored by research from [24], which suggest that streamlining trade processes significantly enhances export performance. Finally, the One Belt One Road (OBOR) initiative, an ambitious infrastructure project launched by China, aims to reduce logistical bottlenecks and enhance connectivity across Asia. By addressing critical transportation and infrastructure gaps, OBOR further facilitates trade between China and Pakistan, enabling smoother and more efficient cross-border exchanges [25]. Collectively, these factors, the economic size of the countries, tariff reductions, lower trade facilitation costs, and the OBOR initiative, work synergistically to create a dynamic and rapidly expanding trade relationship between China and Pakistan, fostering greater economic integration and competitiveness on the global stage [2], [26].

$$EXP = \frac{G \cdot (GDP_i \cdot GDP_j)}{(D = Trade Costs_{ij})} \quad (1)$$

Export value: Trade flows (exports or imports) among countries i and j , GDP_i , GDP_j : Gross Domestic Products of countries i and j , Trade costs_{ij} (Distance has been replaced by e.g., tariffs, transportation, or logistical costs), G : Constant term

3.3. Model specifications

To investigate the effects of these variables on bilateral trade flows between China and Pakistan, the study employs the following three models:

Model 1:

$$\ln(EXP)_{i,t} = \beta_0 + \beta_1 \ln(TR)_{i,t} + \beta_2 \ln(GDP_{combined})_{i,t} + \beta_2 \ln(TF Cost Imports)_{i,t} + \beta_3 \ln(TF Cost Exports)_{i,t} + \beta_4 \ln(OBOR)_{i,t} + \varepsilon_i + U_{i,t} \quad (2)$$

Model 2:

$$\ln(EXP)_{i,t} = \beta_0 + \beta_1 \ln(TR)_{i,t} + \beta_2 \ln(GDP_{combined})_{i,t} + \beta_2 \ln(TF Cost Imports)_{i,t} + \beta_3 \ln(OBOR)_{i,t} + \varepsilon_i + U_{i,t} \quad (3)$$

Model 3:

$$\ln(EXP)_{i,t} = \beta_0 + \beta_1 \ln(TR)_{i,t} + \beta_2 \ln(GDP_{combined})_{i,t} + \beta_2 \ln(TF Cost Exports)_{i,t} + \beta_4 \ln(OBOR)_{i,t} + \varepsilon_i + U_{i,t} \quad (4)$$

This study applies a gravity model to analyze the factors influencing bilateral trade flows between China and Pakistan. The dependent variable, LnEXP, represents the logarithmic value of exports, while the independent variables include the logarithmic values of tariff recession (LnTR), trade facilitation costs for imports (LnTF cost Imp) and exports (LnTF cost Exp), and the combined GDP per capita (LnGDPC) of both countries. The model is centered around a specific export commodity, denoted as I , and the time period, T . The constant, β_0 , represents the baseline export value, while the coefficients, β_1 , β_2 , and β_3 , reflect the impact of each independent variable on export performance. By incorporating these variables, the model offers insights into how tariffs, trade facilitation costs, and economic size affect exports, informing trade policy and strategic management between the two nations.

In our study, we focus on several key variables, trade facilitation costs, export value, tariff reduction, the One Belt One Road (OBOR) initiative, and combined GDP per capita, which have been widely acknowledged in the literature for their impact on trade dynamics. Trade facilitation costs, encompassing customs procedures and transport expenses, significantly shape trade flows, with higher costs hindering exports and market access [27]. Export value, closely linked to tariff reductions and trade agreements, reflects

a country's trade performance, growing significantly when trade barriers are lowered [8], [28]. Tariff reductions, pivotal for expanding trade, lower costs and improve global competitiveness [2], [29]. The OBOR initiative, modeled as a dummy variable, has also been shown to enhance trade by improving infrastructure and connectivity, particularly for participating countries [30]. Furthermore, the combined GDP per capita of China and Pakistan, often used as a measure of market size and economic development, has been proven to influence bilateral trade flows by increasing the purchasing power of the two countries' populations [31]. This variable has been integral to understanding trade performance and has been used in previous studies as an important determinant of trade flows, thus aligning with our model's structure. These variables, collectively, form the foundation of our analysis, supporting the understanding of trade dynamics and policy strategies between China and Pakistan.

3.4. Hypotheses

H1: Higher GDP per capita in both countries will positively influence bilateral trade, as larger economies tend to have higher import demands and greater capacity to trade.

H2: Tariff reductions under the CPFTA will increase exports by lowering trade barriers and enhancing market access.

H3: Higher trade facilitation costs will negatively impact trade flows, as they increase the costs of cross-border trade and reduce competitiveness.

H4: The OBOR initiative will have a positive impact on trade by improving infrastructure and connectivity, thereby reducing trade costs.

3.5. Empirical strategy and contribution to the literature

The empirical analysis uses panel data methods, such as CADF and CIPS unit root tests, to ensure the robustness of the data and meet econometric requirements for adequate estimation [32]. The results of the gravity model are expected to confirm the theoretical predictions: higher GDP and lower tariffs will result in increased exports, while higher trade facilitation costs will hinder trade flows. By examining specific policy measures, such as tariff reductions and trade facilitation costs, this study extends the traditional gravity model to provide a more detailed understanding of the factors influencing bilateral trade under the CPFTA. This study contributes to the gravity model literature by integrating the impact of tariff reductions, trade facilitation costs, and economic size on bilateral trade flows, specifically between China and Pakistan. Unlike previous studies that typically focus on aggregate trade flows, this research dissects the effects at a more granular level, providing insights into the specific roles of trade facilitation and tariff reductions in shaping export performance. Furthermore, by incorporating modern extensions of the gravity model, which account for logistical and procedural barriers [24], this research adds a novel dimension to the understanding of how FTAs influence trade outcomes.

4. Results and Discussion

The descriptive statistics indicate that the variables in the dataset are well-behaved, with no extreme outliers or irregularities. Export value and tariff recession show moderate variability, while GDP per capita for both Pakistan and China, as well as trade facilitation costs, exhibit consistent patterns, aligning with the context of bilateral trade dynamics under the FTA.

Table 4. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
(1) Export value	85	10.072	3.99	1.645	18.342

Variable	Obs	Mean	Std. Dev.	Min	Max
(2) Tariff recession	85	6.838	6.057	.471	18.299
(3) Gdppcpk	85	7.172	.163	6.857	7.39
(4) Gdppccn	85	8.883	.459	7.899	9.45
(5) TF Cost Exports	85	6.548	.177	6.123	6.906
(6) TF Cost Imports	85	6.676	.44	6.064	7.82

Table 4. (Continued)

Author's own estimation through Stata 18

Table 5. Table Correlation analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) Export value	1.000					
(2) Tariff recession	-0.116	1.000				
(3) Gdppcpk	0.228	0.066	1.000			
(4) Gdppccn	0.339	0.069	0.927	1.000		
(5) TF Cost Exports	0.250	0.031	0.520	0.605	1.000	
(6) TF Cost Imports	0.353	0.091	0.645	0.748	0.735	1.000

The correlation analysis reveals no immediate issues with the dependent variable, as its relationships with independent variables are weak to moderate. However, a high correlation between the GDPs per capita of Pakistan and China (0.927) and a moderate correlation between trade facilitation costs for exports and imports (0.735) indicate potential multicollinearity. This has been addressed by using a combined GDP variable and testing trade facilitation costs in separate models, ensuring robust and reliable regression results.

Table 6. Table Cross-sectional Dependence

	Estimate	P-Vale
Pesaran CD test	5.925***	0.000
Frees test	45.161***	0.000

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table (6) findings offer compelling evidence of cross-sectional dependence in the sheet data, as demonstrated by the Pesaran CD and Frees tests. The Pesaran CD test yields a test statistic of 5.925-45.161 and a p-value below 1%. This outcome is markedly significant, resulting in a refusal of the null hypothesis of no cross-sectional dependence. Collectively, these findings strongly indicate the presence of cross-sectional dependence; in light of this evidence, a second-generation unit root test is essential to utilize, as it can adequately address cross-sectional dependence and unit root concerns in subsequent analyses to guarantee the precision and dependability of the results.

Table 7. Table 2nd generation Unit root test

Variables	CADF	CIPS
	I (0)	I (0)
Export Value	-0.972***	-1.482 ***
Tariff Recession	-1.191***	-1.047***

	CADF	CIPS
GDP Pak	-2.414***	-2.101***
GDP Ch	-2.401***	-2.215***
TF Cost Exports	-3.847***	-4.774***
TF Cost Imports	-2.106***	-4.172***

Author's Own Estimation Through Stata 18

Second-generation unit root tests, like CADF and CIPS, confirm all variables are static at levels (I (0)), addressing both cross-sectional dependence and unit root behavior [33]. These tests are more robust than first-generation tests, which undertake cross-sectional independence, ensuring reliable results in panel data influenced by global shocks [34]. The findings validate the use of panel regression methods for analyzing trade and macroeconomic factors, as supported by recent studies [34], [35].

According to Table (7), the dataset satisfies the assumptions for the Random Effects model due to the independence of commodities and consistent trade policies under the FTA. Proper controls, such as GDP and tariff reductions, ensure no cross-sectional dependence, as confirmed by CADF and CIPS tests [36, 37].

4.1. Main results and discussion

To facilitate an accurate analysis of the different variables and underscore the relatively unpredictable outcomes of the various methodologies, my empirical analysis utilizes a balanced panel of annual observations, focusing on the China-Pakistan region, selected for its significance with Pakistani exports, encompassing 150 commodities over the period from 2007 to 2017. The dataset comprises 1,637 observation items for all variables in the sheet. I provide estimates from various specifications, including ordinary least squares (OLS), a heteroscedasticity test, a robust error term test, the Ramsey RESET test for omitted variables, and the variance inflation factor (VIF) to identify the optimal results for my investigation.

The bilateral Free Trade Agreement is regarded as the primary focus of the study. The FTA grade models are remarkable as they demonstrate the impact on bilateral trade at a certain phase relative to a scenario in which both nations are without a common FTA agreement. The factor of estimations for the anticipated contract variable is positive across all regression techniques utilized in the analysis of bilateral FTAs. The estimate obtained by negative-sing is not only positive but also statistically significant, showing a preventative impact. We see the negative-sing outcome as the most suitable owing to data over-spreading. We achieved substantial results for the contracted context agreement variable, which is considerably positive across all regressions. To elucidate, the variables are logarithmically converted to illustrate the percentage(%) rise or decrease in the dependent variable resulting from alterations in the explanatory factors.

Table 8. Results Model 1

	RE (1) Export value	FE (2) Export value	PCSEs (3) Export value	DKSE (4) Export value
Tariff Recession	-0.0614* (0.0654)	-0.0591* (0.0675)	-0.0880** (0.0281)	-0.0614* (0.0739)
GDP/Combined	6.095*** (1.258)	6.094*** (1.266)	6.107*** (0.908)	6.095** (1.522)
TF Cost Imports	-9.732*	-9.732*	-9.735***	-9.732***

	RE (1)	FE (2)	PCSEs (3)	DKSE (4)
	Export value	Export value	Export value	Export value
	(4.013)	(4.038)	(2.898)	(1.973)
TF Cost Exports	3.079* (3.655)	3.078* (3.677)	3.091** (2.640)	3.079* (2.913)
OBOR	1.084* (1.403)	1.084* (1.411)	1.083* (1.013)	1.084* (0.799)
_cons	-0.0210 (1.225)	-0.0210 (0.364)	-0.0210 (0.261)	-0.0210 (0.773)
<i>N</i>	85	85	85	85
<i>R</i> ²	0.86	0.86	0.73	0.73

Table 8. (Continued)

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The analysis examines the determinants of Pakistan's export value, focusing on Tariff Recession, GDP per capita in China, Trade facilitation Costs for Imports/containers, and Trade facilitation Costs for Exports/containers, with the Random Effects (RE) model serving as the baseline motivated by Hausman and supported by robustness checks (FE, PCSEs, and DKSE). The coefficient for Tariff Recession (-0.0614, $p < 0.05$) is negative and significant, indicating that reducing export tariffs enhances Pakistan's export value, consistent with trade liberalization theories [36]. GDP per capita in China (6.095, $p < 0.001$) is positively associated with export value, implying that rising income levels in China increase demand for Pakistani goods, supporting Engel's Law [38]. Similarly, the Trade facilitation Costs for Imports/containers (-9.732, $p < 0.05$) have a negative and significant impact, showing that lower import costs in China boost industrial productivity and indirectly facilitate Pakistan's exports [39].

However, the positive coefficient for Trade facilitation Costs for Exports/containers (3.079, $p < 0.05$) is counterintuitive, as higher export costs should logically reduce export value. This result may stem from multicollinearity between Trade facilitation Costs for Imports and Exports/containers, as the two variables are likely highly correlated due to shared trade facilitation dynamics. High multicollinearity inflates standard errors and undermines the reliability of coefficient estimates, leading to potentially spurious results. To mitigate this issue, the analysis separates Trade facilitation Costs for Imports and Exports/containers into distinct models, isolating their effects and improving the robustness of the results. The robustness checks confirm the significance and consistency of the baseline findings, highlighting the critical roles of tariff reduction and China's economic growth in enhancing Pakistan's exports. This approach underscores the importance of addressing multicollinearity in econometric models to ensure reliable policy insights.

Table 9. Results Model 2

	RE (1)	FE (2)	PCSEs (3)	DKSE (4)
	Export value	Export value	Export value	Export value
Tariff Recession	-0.0609* (0.0653)	-0.0586* (0.0674)	-0.0878** (0.0281)	-0.0609* (0.0734)

	RE (1) Export value	FE (2) Export value	PCSEs (3) Export value	DKSE (4) Export value
GDP/Combined	6.145*** (1.254)	6.144*** (1.262)	6.157*** (0.943)	6.145*** (1.413)
TF Cost Imports	-6.663*** (1.678)	-6.664*** (1.688)	-6.653*** (1.262)	-6.663** (1.936)
OBOR	0.0241** (0.619)	0.0245** (0.623)	0.0193* (0.466)	0.0241* (0.704)
_cons	-0.0160 (1.225)	-0.0160 (0.363)	-0.0160 (0.271)	-0.0160 (0.833)
<i>N</i>	85	85	85	85
<i>R</i> ²	0.86	0.86	0.729	0.73

Table 9. (Continued)

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table analyzes the determinants of Pakistan's export value, highlighting the impacts of Trade Facilitation (TF) Costs for Imports, Tariff Recession, GDP per capita in China, and participation in the One Belt One Road (OBOR) initiative. The Tariff Recession coefficient (-0.0609, $p < 0.05$) is negative and significant, indicating that reducing trade restrictions enhances Pakistan's export performance, consistent with trade liberalization theories like ^[36] gravity model. GDP per capita in China (6.145, $p < 0.001$) shows a positive and strong relationship with export value, suggesting that as China's income levels rise, so does its demand for Pakistani goods, in line with Engel's Law and studies such as ^[38]. The negative and highly significant coefficient for TF Costs for Imports (-6.663, $p < 0.001$) underscores that reduced import costs in China bolster industrial efficiency and indirectly enhance Pakistan's exports by supporting supply chain dynamics, as highlighted in trade facilitation research ^[39]. Additionally, participation in the OBOR initiative (0.0241, $p < 0.01$) positively impacts export value, reflecting the benefits of improved infrastructure and connectivity, which reduce logistical barriers and expand market access, consistent with ^[40]. These findings collectively emphasize the critical role of reduced trade costs, economic interdependence, and regional infrastructure initiatives in enhancing export performance. Robustness checks across models (FE, PCSEs, and DKSE) confirm the reliability of these results, ensuring they are not driven by statistical anomalies. Together, these insights highlight actionable strategies for Pakistan to improve export competitiveness, including reducing trade facilitation costs and strengthening ties with regional economic initiatives like OBOR.

Table 10. Results Model 3

	RE (1) Export value	FE (2) Export value	PCSEs (3) Export value	DKSE (4) Export value
Tariff Recession	-0.0612* (0.0673)	-0.0588* (0.0696)	-0.0879** (0.0281)	-0.0612* (0.0738)
GDP/Combined	4.951***	4.950***	4.963***	4.951**

	RE (1)	FE (2)	PCSEs (3)	DKSE (4)
	Export value	Export value	Export value	Export value
	(1.203)	(1.210)	(1.086)	(1.637)
TF Cost Exports	-4.970** (1.579)	-4.970** (1.589)	-4.959*** (1.426)	-4.970* (2.201)
OBOR	1.936** (0.666)	1.936** (0.670)	1.938** (0.602)	1.936* (0.802)
_cons	-0.0191 (1.227)	-0.0191 (0.375)	-0.0190 (0.337)	-0.0191 (1.108)
<i>N</i>	85	85	85	85
<i>R</i> ²	0.85	0.846	0.721	0.73

Table 10. (Continued)

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The analysis across Table 8, Table 9, and Table 10 explores the key determinants of Pakistan's export value, focusing on Trade Facilitation (TF) Costs for Imports and Exports, Tariff Recession, GDP per capita in China, and participation in the One Belt One Road (OBOR) initiative. The results reveal a consistent pattern, where a reduction in trade-related barriers and costs significantly enhances Pakistan's export performance. In all models, the Tariff Recession is negatively and significantly associated with export value, indicating that every 1% drop in trade restrictions leads to a 0.06% rise in export value. This aligns with trade liberalization theories, such as those of [36], which emphasize that lower trade barriers reduce transaction prices and improve competitiveness. Similarly, GDP per capita in China consistently shows a positive and noteworthy correlation with export value, where a 1% increase in Chinese income levels raises Pakistan's exports by 6.15% (Table 9) and 4.95% (Table 10). This reflects Engel's Law, as higher income levels drive greater demand for imports, particularly from developing economies like Pakistan [38].

Trade Facilitation (TF) Costs also play a critical role in determining export performance. In Table 5, a 1% decrease in 00TF Costs for Imports increases Pakistan's export value by 6.66%, underscoring the importance of efficient supply chains in reducing production costs and enhancing export capacity. Similarly, in Table 6, a 1% reduction in TF Costs for Exports leads to a 4.97% increase in export value, highlighting the importance of minimizing logistical and procedural barriers to improve the competitiveness of exported goods. These findings align with trade facilitation literature, such as [39] and [41], which emphasize that reducing trade costs is essential for fostering global competitiveness, particularly in developing economies.

Participation in the OBOR initiative further enhances export performance, with a 1% increase in OBOR-related activities boosting export value by approximately 0.0241% (Table 2) and 1.94% (Table 10). This underscores the transformative role of infrastructure investments and improved connectivity under OBOR in reducing trade costs, enhancing logistics, and expanding market access for Pakistan, as documented by [40] and [42]. Together, these results paint a cohesive picture of how reducing trade facilitation costs, leveraging external economic growth, and participating in regional trade initiatives can drive export performance. Robustness checks across all models confirm the reliability of these findings, providing strong empirical support for actionable trade policies that can enhance Pakistan's global competitiveness. By

integrating these insights, this study provides a roadmap for addressing trade challenges and capitalizing on emerging opportunities in international trade.

5. Conclusion and policy recommendation

5.1. Conclusion

Using 150 commodities having preferential access below the China-Pakistan Free Trade Agreement 2007, this study examines the influence of the China-Pakistan Free Trade Agreement on Pakistani export performance. The results using data from 2007 up to 2023 and the Generalized Least Squares (GLS) estimation approach are found to have a substantial and positive effect of the FTA on Pakistan's export levels. Data from 2007 to 2023 and applying the Generalized Least Squares (GLS) estimation approach, results demonstrate a noteworthy and positive impact of the FTA on Pakistan's export levels. These results cohere with current literature on trade agreements (e.g., ^[43], which purports to find that FTA greatly increases the volume of trade by cutting tariffs and non-tariff barriers and enhancing market access and economic integration. Further, reducing what is referred to as trade costs, from such components as export container costs from Pakistan to China and import costs of Chinese products from Pakistan, are effective levers for increasing trade. This supports the arguments of ^[39] and ^[44] that to increase export competitiveness in developing economies achieving reductions in logistical barriers and trade facilitating costs is an important goal.

Higher exports to China have not been able to overcome Pakistan's persistent deficit to China in trade terms. As with previous studies ^[45], ^[46], these structural challenges, high production costs, the absence of industrial growth, and energy crises, limit Pakistan's export potential. This is important to achieve balance in the trade relationship. Within this context, Pakistan's weak economy and high cost of production create such limitations that its ability to fully benefit from the FTA is similar to what is found by ^[47] in highlighting the significance of domestic stability and industrial policy alignment for such FTAs' use.

Further, the study points out that the reduction of tariffs on highly traded goods can have a positive effect on market penetration for both nations, in line with ^[42] who found that the reduction of tariffs increases total trade volumes under the Belt and Road Initiative. What's more, the results show the necessity for Pakistan to concentrate on lowering product costs and boosting industrial competitiveness to maintain the export rise. Many others have since found trade facilitation to be critically important in the literature (^[41] and ^[48], for example, highlight the importance of trade processes that are well facilitated and better logistics that create the trade environment in which exporters can compete effectively in world markets). This calls for a first-of-its-kind collaboration between Pakistan and China to address logistical and procedural bottlenecks and promote high-potential export sectors mutually. For long-term trade growth, investments in infrastructure, industrial capacity, and policy reform, all talked about by ^[40], are essential. It can be also possible to enhance these approaches by engaging with stakeholders such as policymakers and industry leaders to create evidence-based strategies.

Finally, the FTA lays a strong ground for further deepening of trade between Pakistan and China, but challenges remain domestic. Stabilizing its economy, reducing trade costs, and thereby an improvement in its export competitiveness, will allow Pakistan to achieve sustainable trade growth and to better balance its trade relationship with China. The addition of this study is to the literature on FTAs by documenting the interaction among trade facilitation, domestic economic reforms, and trade performance. Future research could examine the sectoral impacts of the FTA and show the impact of ongoing trade reforms in the long term for policymakers and stakeholders.

5.2. Policy recommendations

To enhance Pakistan's export performance under the Free Trade Agreement (FTA) with China and address trade imbalances, the government should renegotiate the terms to ensure equitable benefits, focusing on revised tariff schedules and enhanced market entrance for Pakistani products. Reducing trade facilitation costs, including import and export container costs, is crucial to boost competitiveness and foster trade. Monitoring rising imports and protecting vulnerable industries by expanding the protection list is equally important. Pakistan must improve the quality of key export sectors, such as textiles, leather, and chemicals while diversifying into high-value-added goods like IT services. Establishing export-oriented Special Economic Zones (SEZs) under CPEC, integrating digital tools such as blockchain for customs, and prioritizing sustainable trade practices through renewable energy adoption can further enhance competitiveness. Strengthening trade diplomacy through regular reviews and capacity building for exporters, particularly SMEs, in market intelligence and branding will ensure long-term export growth. These measures provide a strategic roadmap for maximizing FTA benefits, balancing trade, and fostering economic sustainability.

Conflict of interest

The authors declare no conflict of interest

References

1. J. E. Anderson, "The Gravity Model," *Annu Rev Econom*, vol. 3, no. 1, pp. 133–160, 2011, doi: 10.1146/annurev-economics-111809-125114.
2. J. E. Anderson and E. van Wincoop, "Gravity with Gravitas: A Solution to the Border Puzzle," *American Economic Review*, vol. 93, no. 1, pp. 170–192, 2003, doi: 10.1257/000282803321455214.
3. A. Masood, S. Ullah, Y. Tahira, and M. Aslam, "Impact of China-Pakistan Regional Trade Agreement on Pakistan's Exports: An Analysis Using Gravity Trade Model," *Pakistan Journal of Applied Economics*, vol. 31, no. 1, pp. 99–112, 2021.
4. S. Shabir and R. Kazmi, "Economic Effects of the Recently Signed Pak-China Free Trade Agreement," *THE LAHORE JOURNAL OF ECONOMICS*, vol. 12, no. Special Edition, 2007, doi: 10.35536/lje.2007.v12.isp.a9.
5. T. Chaudhry, N. Jamil, and A. Chaudhry, "Pakistan's Experience with the Pakistan – China FTA : Lessons for CPEC," *The Lahore Journal of Economics*, vol. 22, no. September, pp. 1–24, 2017.
6. S. H. Shah, M. A. Kamal, and D. L. Yu, "Did China-Pakistan free trade agreement promote trade and development in Pakistan?," *International Journal of Finance & Economics*, vol. 27, no. 3, pp. 3459–3474, 2022.
7. R. C. Feenstra and G. H. Hanson, "Foreign direct investment and relative wages: Evidence from Mexico's maquiladoras," *J Int Econ*, vol. 42, no. 3–4, pp. 371–393, 1997, doi: 10.1016/s0022-1996(96)01475-4.
8. S. L. Baier and J. H. Bergstrand, "Do free trade agreements actually increase members' international trade?," *J Int Econ*, vol. 71, no. 1, pp. 72–95, 2007, doi: 10.1016/j.jinteco.2006.02.005.
9. F. Peng, L. Kang, T. Liu, J. Cheng, and L. Ren, "Trade Agreements and Global Value Chains: New Evidence from China's Belt and Road Initiative," *Sustainability*, vol. 12, no. 4, p. 1353, 2020, doi: 10.3390/su12041353.
10. T. Theresa, N. Jamil, and A. Chaudhry, "Pakistan's Experience with the Pakistan–China FTA: Lessons for CPEC," *THE LAHORE JOURNAL OF ECONOMICS*, vol. 22, no. Special Edition, pp. 1–24, 2017, doi: 10.35536/lje.v22.isp.a1.
11. G. Grossman and E. Helpman, "The Politics of Free Trade Agreements," National Bureau of Economic Research, 1993. doi: 10.3386/w4597.

12. P. I. Levy and B. P. I. Levy, "A Political-Economic Analysis of Free-Trade Agreements," vol. 87, no. 4, pp. 506–519, 2014.
13. S. L. Baier and J. H. Bergstrand, "Do free trade agreements actually increase members' international trade?," *J Int Econ*, vol. 71, no. 1, pp. 72–95, 2007, doi: 10.1016/j.jinteco.2006.02.005.
14. 2023 Shafiq et al., "ANALYZING THE CHINA-PAKISTAN FREE TRADE AGREEMENT: IMPLICATIONS AND LESSONS FOR PAKISTAN'S FUTURE FREE TRADE AGREEMENTS," *Russian Law Journal*, 2023, doi: 10.52783/rlj.v11i6.4188.
15. A. Masood, S. Ullah, Y. Tahira, and M. Aslam, "Impact of China-Pakistan Regional Trade Agreement on Pakistan's Exports: An Analysis Using Gravity Trade Model," *Pakistan Journal of Applied Economics*, vol. 31, no. 1, pp. 99–112, 2021.
16. J. S. Wilson, C. L. Mann, and T. Otsuki, "Trade facilitation and economic development: measuring the impact," *World Bank Policy Research Working Paper*, vol. 2988, no. 2005, pp. 841–869–841–869, 2003, [Online]. Available: http://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID636350_code384013.pdf?abstractid=636350&
17. B. Hoekman and B. Shepherd, "Who profits from trade facilitation initiatives? Implications for African countries☆," *Journal of African Trade*, vol. 2, no. 1–2, p. 51, 2015, doi: 10.1016/j.joat.2015.08.001.
18. M. Saeed, "The WTO Trade Facilitation Agreement : Implications for Pakistan ' s D omestic Trade Policy Formulation," *The Lahore Journal of Economics*, vol. 19, no. September, pp. 439–460, 2014.
19. Q. H. Hamid Mukhtar, "A CRITICAL ANALYSIS OF CHINA-PAKISTAN FREE TRADE AGREEMENT: LEARNING EXPERIENCES FOR PAKISTAN WITH RESPECT TO ITS FUTURE FTAs," *Global Journal of Politics and Law Research*, vol. 7, no. 9, pp. 863–871, 2017, [Online]. Available: (www.eajournals.org)
20. M. S. Irshad, "Pakistan-China Free Trade Agreement (PCFTA) Treaty Model: Capability, Prospects and Disputes," *SSRN Electronic Journal*, 2015, doi: 10.2139/ssrn.2690798.
21. A. R. Malik, "The Pakistan-China Bilateral Trade: The Future Trajectory," *Strategic Studies*, vol. 37, no. 1, pp. 66–89, 2017, doi: 10.53532/ss.037.01.00231.
22. J. Du and Y. Zhang, "Does One Belt One Road initiative promote Chinese overseas direct investment?," *China Economic Review*, vol. 47, pp. 189–205, 2018, doi: 10.1016/j.chieco.2017.05.010.
23. L. Ali, S. J. Shah, K. BiBi, S. Khan, J. Mi, and M. Shah, "The Potential Socio-Economic Impact of China Pakistan Economic Corridor," *Asian Development Policy Review*, vol. 5, no. 4, pp. 191–198, 2017, doi: 10.18488/journal.107.2017.54.191.198.
24. H. Khan, Y. Chen, and L. Lv, "Does the China–Pakistan free trade agreement benefit the vegetable exports of Pakistan? A gravity estimation," *Front Sustain Food Syst*, vol. 8, 2024, doi: 10.3389/fsufs.2024.1362910.
25. T. Zhai, "Environmental Challenges, Opportunities, and Policy Implications to Materialize China's Green Belt and Road Initiative," *Sustainability*, vol. 13, no. 18, p. 10428, 2021, doi: 10.3390/su131810428.
26. A. Deardorff, "Determinants of Bilateral Trade: Does Gravity Work in a Neoclassical World?," National Bureau of Economic Research, 1995. doi: 10.3386/w5377.
27. A. Abbas, A. Rauf, and S. Mumtaz, "Evaluating the effect of tariff and non-tariff barriers on exports in the pre and post China-pak free trade agreement (FTA) period," *NUST Journal of Social Sciences and Humanities*, vol. 9, no. 2, pp. 156–173, 2023.
28. M. Malcolm, "Do local exports impact congressional voting on free trade agreements?," *Econ Lett*, vol. 154, pp. 31–34, 2017, doi: 10.1016/j.econlet.2017.02.018.
29. F. J. Contractor, "Assessing the economic impact of tariffs: adaptations by multinationals and traders to mitigate tariffs," *Review of international business and strategy*, vol. 35, no. 2/3, pp. 190–213, 2025.
30. M. Zreik, "The Belt and Road Initiative: Vision, Objectives, and Complexities," in *Qatar's Role in China's Belt and Road Initiative: Bridging Two Economic Titans*, Springer, 2025, pp. 25–54.

31. J. A. Frankel and D. Romer, "Does Trade Cause Growth?," *American Economic Review*, vol. 89, no. 3, pp. 379–399, 1999, doi: 10.1257/aer.89.3.379.
32. M. H. Pesaran, "Testing Weak Cross-Sectional Dependence in Large Panels," *Econom Rev*, vol. 34, no. 6–10, pp. 1089–1117, 2015, doi: 10.1080/07474938.2014.956623.
33. M. H. Pesaran, "A simple panel unit root test in the presence of cross-section dependence," *Journal of Applied Econometrics*, vol. 22, no. 2, pp. 265–312, 2007, doi: 10.1002/jae.951.
34. A. Chudik and H. Pesaran, "Large panel data models with cross-sectional dependence: a survey," 2015.
35. B. H. Baltagi, Q. Feng, and C. Kao, "A Lagrange Multiplier test for cross-sectional dependence in a fixed effects panel data model," *J Econom*, vol. 170, no. 1, pp. 164–177, 2012, doi: 10.1016/j.jeconom.2012.04.004.
36. J. E. Anderson and E. van Wincoop, "Gravity with Gravitas: A Solution to the Border Puzzle," *American Economic Review*, vol. 93, no. 1, pp. 170–192, 2003, doi: 10.1257/000282803321455214.
37. M. H. Pesaran, "A simple panel unit root test in the presence of cross-section dependence," *Journal of Applied Econometrics*, vol. 22, no. 2, pp. 265–312, 2007, doi: 10.1002/jae.951.
38. R. C. Feenstra and G. H. Hanson, "Foreign direct investment and relative wages: Evidence from Mexico's maquiladoras," *J Int Econ*, vol. 42, no. 3–4, pp. 371–393, 1997, doi: 10.1016/s0022-1996(96)01475-4.
39. J.-F. Arvis, Y. Duval, B. Shepherd, and C. Utoktham, "Trade costs in the developing world: 1995-2010," ARTNeT working paper series, 2012.
40. J. Du and Y. Zhang, "Does One Belt One Road initiative promote Chinese overseas direct investment?," *China Economic Review*, vol. 47, pp. 189–205, 2018, doi: 10.1016/j.chieco.2017.05.010.
41. J. S. Wilson, C. L. Mann, and T. Otsuki, "Trade Facilitation and Economic Development: A New Approach to Quantifying the Impact," *World Bank Econ Rev*, vol. 17, no. 3, pp. 367–389, 2003, doi: 10.1093/wber/lhg027.
42. F. Peng, L. Kang, T. Liu, J. Cheng, and L. Ren, "Trade Agreements and Global Value Chains: New Evidence from China's Belt and Road Initiative," *Sustainability*, vol. 12, no. 4, p. 1353, 2020, doi: 10.3390/su12041353.
43. S. L. Baier and J. H. Bergstrand, "Do free trade agreements actually increase members' international trade?," *J Int Econ*, vol. 71, no. 1, pp. 72–95, 2007, doi: 10.1016/j.jinteco.2006.02.005.
44. B. Hoekman and B. Shepherd, "Who profits from trade facilitation initiatives? Implications for African countries☆," *Journal of African Trade*, vol. 2, no. 1–2, p. 51, 2015, doi: 10.1016/j.joat.2015.08.001.
45. A. L. I. H. SALEEM, "TRADE DEFICIT WITH CHINA: REALISING GAINS FOR PAKISTAN," *INSTITUTE OF REGIONAL STUDIES ISLAMABAD*, vol. 38, no. 3, pp. 99–114, 2020.
46. S. H. Shah, M. A. Kamal, and D. L. Yu, "Did China-Pakistan free trade agreement promote trade and development in Pakistan?," *International Journal of Finance & Economics*, vol. 27, no. 3, pp. 3459–3474, 2022.
47. C. M. A. van der Ven, "Trade, development and industrial policy in Africa: the case for a pragmatic approach to optimizing policy coherence between industrial policy and the WTO policy space," *Law and Development Review*, vol. 10, no. 1, pp. 29–80, 2017.
48. A. Abbas, A. Rauf, and S. Mumtaz, "Evaluating the effect of tariff and non-tariff barriers on exports in the pre and post China-pak free trade agreement (FTA) period," *NUST Journal of Social Sciences and Humanities*, vol. 9, no. 2, pp. 156–173, 2023.

Appendix: 150 Pakistanis Exports to China

Category 1	Category 2	Category 3	Category 4	Category 5
HS code	HS code	HS code	HS code	HS code
23012010	3031900	3073900	2041000	3033900
23064100	3051000	5119990	3072900	3037400
23064900	7139090	7123200	4090000	8023100
25051000	39079900	9024090	5010000	8023200
25151100	39151000	61033200	8109090	8029090
25151200	52041100	61033900	19059000	8131000
25152000	52041900	61034200	42021210	8134030
26012000	52051100	61034900	61012000	10051000
26100000	52051200	61041900	61022000	10059000
26190000	52051300	61042900	61032200	10063090
52081100	52051400	61043900	61042200	11081200
52081200	52052100	61046200	61083100	12101000
52081300	52052200	61046900	61112000	19053100
52081900	52052300	61059000	62032200	29173610
52083100	52052400	61061000	62033200	39011000
52091100	52053100	61069000	62041200	39012000
52091200	52053200	61121100	62042200	39076090
52091900	52053300	61159900	62045200	40012900
52093200	52053400	62031910	63019000	41053000
52094200	52053500	62092010	63053900	41079200
52101100	52054200	63053300	63059000	41120000
52121100	52054400	63080000	63101000	41131000
55095300	52061100	64022000	67042000	41139000
55131110	52061200	64042000	68159100	48195000
63021010	52062200	3073900	73102900	51012100
72051000	52063200	5119990	74181900	52021000
74031900	56012900	7123200	85068000	52029100
90189090	74082100	9024090	92060000	52029900
95066210	3031900	61033200	97019000	52030000
61043200	61091000	61161000	82032000	85167100
61051000	61099090	63109000	82142000	95079000